

MATERIAL AND METHODS

Young flower buds from wild populations were fixed in 1 : 3, acetic acid : alcohol, for 24 hours, then transferred into 70 % ethyl alcohol and stored in the refrigerator. Details on techniques used for microsporogenesis, pollen fertility and the preparation of distribution maps have been discussed elsewhere (GILL & HUSAINI, 1981, 1984). The vouchers are kept in the herbarium, University of Benin, Benin City, Nigeria.

RESULTS

The exact locality, voucher number, chromosome number, base number and ploidy level for each population sampled are given in Table 1.

***S. bispinosa* (Jacq.) F. W. Wight**

A much branched glabrous shrub up to 3 m high with purple spotted yellow flower. It is widely distributed in Nigeria (Fig. 2) and often found in acidic habitats along roadsides. It flowers from June to August.

A haploid count of $n = 12$ was made at M-I (Fig. 1, I). Meiosis and pollen formation were normal with an average pollen grain size of $32.0 \mu\text{m}$.

TABLE 1 : Accession of Material used.

TAXON	ACC. No. ¹	LOCALITY	HAPLOID NUMBER	BASE NUMBER	PLOIDY LEVEL
<i>Sesbania bispinosa</i> (Jacq.) F. W. Wight	S.W.H. 277	Auchi — Agbede Road, Bendel State.	12	6	Tetraploid
* <i>S. dalzielii</i> Phill. & Hutch.	S.W.H. 144	Agbarho Bendel State.	14	7	Tetraploid
<i>S. dalzielii</i> Phill. & Hutch.	S.W.H. 148	Effurun, Bendel State.	14	7	Tetraploid
<i>S. grandiflora</i> (L.) Poir.	S.W.H. 171	Port-Harcourt, River State.	12	6	Tetraploid
* <i>S. pachycarpa</i> DC.	S.W.H. 279	Benin — Ekpoma Road, Bendel State.	7	7	Diploid
* <i>S. pubescens</i> DC.	S.W.H. 276	Agbede, Bendel State.	14	7	Tetraploid
<i>S. sesban</i> (L.) Merrill	S.W.H. 083	Benin City, Bendel State.	7	7	Diploid
<i>S. sesban</i> (L.) Merrill	S.W.H. 104	Benin City, Bendel State.	8	8	Diploid

1. The designation S. W. H. refers to the material collected by Dr. S. W. H. HUSAINI.

* Taxa worked out for the first time.

***S. dalzielii* Phill. & Hutch.**

A slender shrub up to 1 m high, restricted in distribution to alluvial soils of Nigeria (Fig. 2). The flowering period is from January to March.

Two populations were investigated and both proved to have a haploid count of $n = 14$

(Fig. 1, 2). Meiosis and pollen formation were normal with 90 % filled pollen. Pollen grain size averaged $25.6 \mu\text{m}$.

***S. grandiflora* (L.) Poir.**

Commonly cultivated shrub or small tree up to 3 m tall with spreading branches, flowers creamish white in lax racemes. It flowers from December to March.

Twelve chromosomes were counted at diakinesis (Fig. 1, 3). Meiosis and pollen formation were normal with an average grain size of $32.0 \mu\text{m}$.

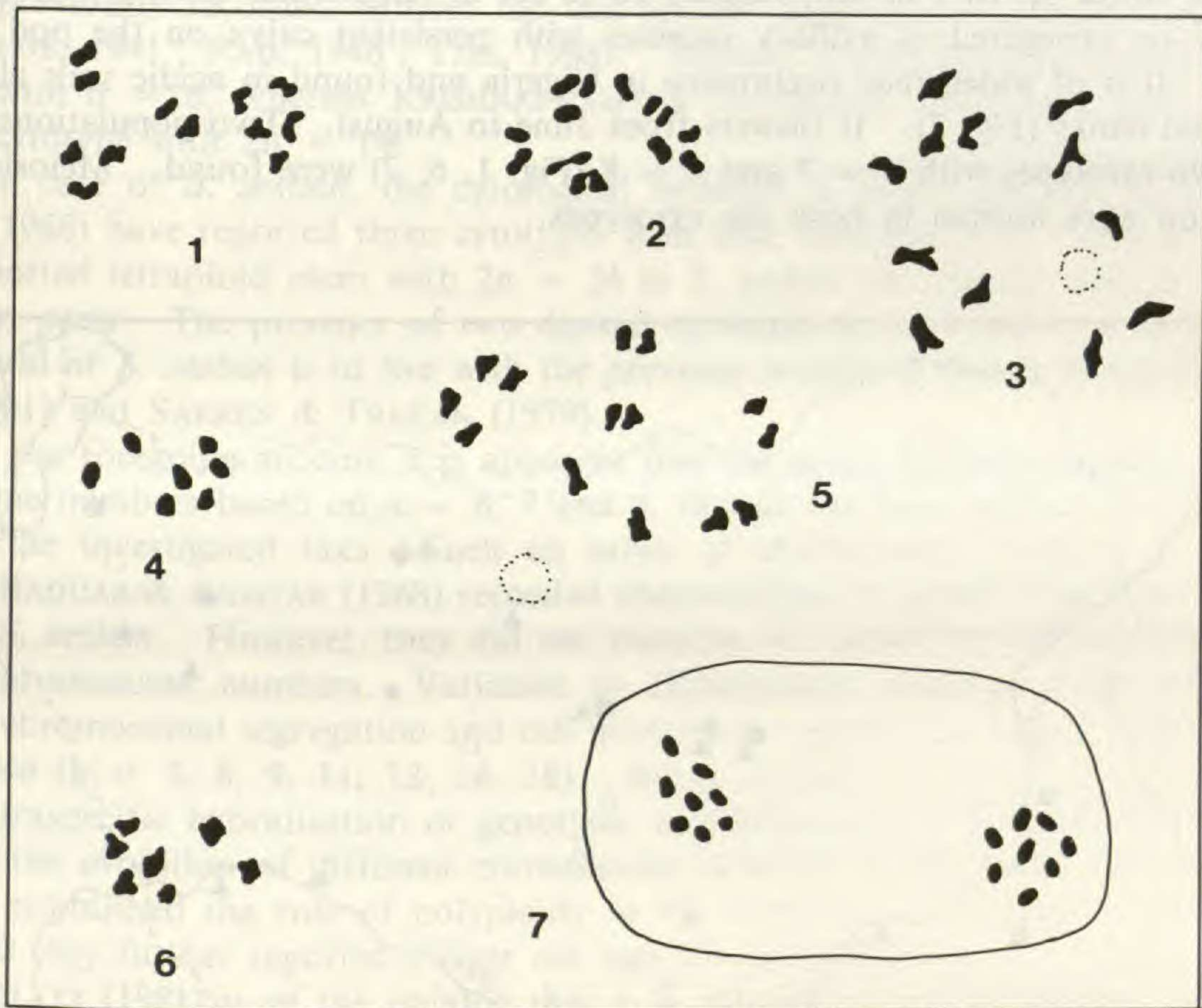


Fig. 1. — Chromosome numbers in six species of *Sesbania* : 1, *S. bispinosa*, $n = 12$ (AI) ; 2, *S. dalzielii*, $n = 14$ (MI) ; 3, *S. grandiflora*, $n = 12$ (Diak.) ; 4, *S. pachycarpa*, $n = 17$ (MI) ; 5, *S. pubescens*, $n = 14$ (Diak.) ; 6, *S. sesban*, $n = 7$ (MI) ; 7, *S. sesban*, $n = 8$ (MI).

***S. pachycarpa* DC.**

A herb up to 2-3 m tall with yellow flowers, the standard purple spotted. It is widely distributed in acidic soils along roadside in Nigeria (Fig. 2). The flowering period is from June to August.

A haploid count of 7 was made at M-I (Fig. 1, 4). The % of filled pollen is 92.0 and grain size is $32.0 \mu\text{m}$.

***S. pubescens* DC.**

A slender shrub of widespread distribution and occurs in ferralsols, ferruginous tropical soils and lithosols of Nigeria (Fig. 2). It flowers from June to August.

Fourteen chromosomes were counted at diakinesis (Fig. 1, 5). Meiosis and pollen formation followed a normal course.

***S. sesban* (L.) Merrill**

A large shrub up to 5 m tall, leaflets 10-15 cm in length and ending in a point, flowers yellow or variegated in axillary racemes with persistent calyx on the pod for quite some time. It is of widespread occurrence in Nigeria and found in acidic soils along roadside and sand banks (Fig. 2). It flowers from June to August. Two populations were studied and two cytotypes with $n = 7$ and $n = 8$ (Fig. 1, 6, 7) were found. Meiosis and pollen formation were normal in both the cytotypes.

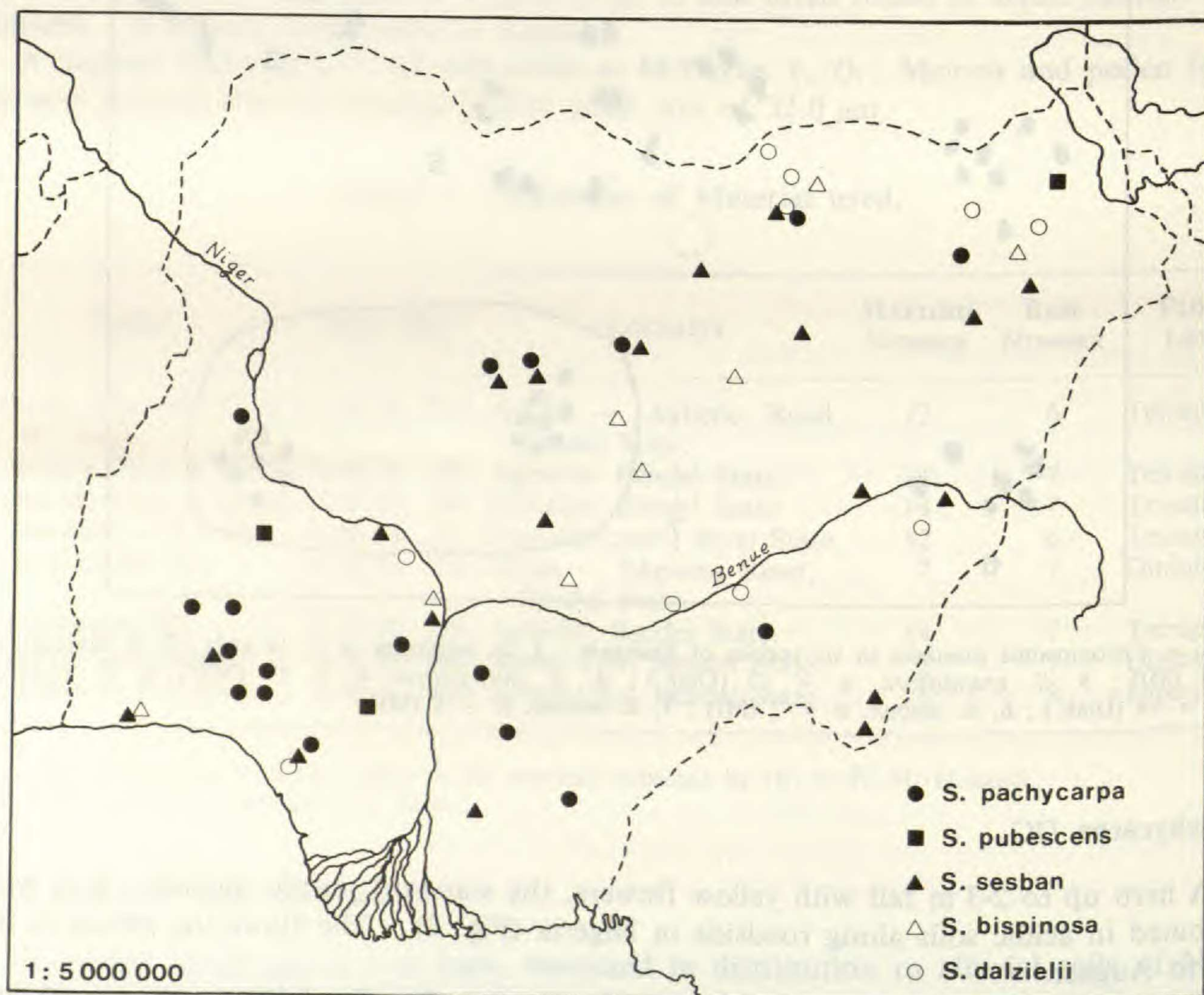


Fig. 2. — A distribution map for five species of *Sesbania* from Nigeria.

DISCUSSION

Of the six species studied, chromosome numbers for *S. dalzielii* ($n = 7$), *S. pachycarpa* ($n = 7$) and *S. pubescens* ($n = 14$) are new reports. All the investigated species except *S. pachycarpa* and *S. sesban* are tetraploids. A perusal of the literature reveals that *S. bispinosa* has two cytotypes based on $x = 6$ and 7. The present report of $n = 12$ in *S. bispinosa* confirms the previous reports of JACOB (1941) and TURNER (1955). However, BAQUAR & AKHTAR (1968), BIR & SIDHU (1967), MIÈGE (1960) and SAREEN & TREHAN (1979) have reported a diploid cytotype with $n = 6$. The report of $n = 12$ in *S. grandiflora* is in line with the previously recorded number for this species (BAQUAR & AKHTAR, 1968 ; HAQUE, 1946 ; JACOB, 1941 ; RAO, 1946 ; ТЛО, 1948). SHARMA (1970) has also recorded a diploid cytotype with $n = 6$, whereas KRISHNASWAMY & AYYANGER (1935) and SENN (1938) had reported cytotype with $2n = 14$.

In the case of *S. sesban*, the cytological situation is more complex, and BAQUAR & AKHTAR (1968) have reported three cytotypes with base numbers of 6, 7 and 8. BIR et al. (1975) reported tetraploid races with $2n = 24$ in *S. sesban* var. *bicolor* and $2n = 28$ in *S. sesban* var. *picta*. The presence of two diploid cytotypes ($n = 7$ and $n = 8$) in the Nigerian material of *S. sesban* is in line with the previous records of BIR & SIDHU (1967, 1974), JACOB (1941) and SAREEN & TREHAN (1979).

From the foregoing account it is apparent that the genus *Sesbania* displays an array of chromosome numbers based on $x = 6, 7$ and 8, though the base number of 6 is more prevalent in the investigated taxa. Such an array of chromosome numbers is difficult to explain. BAQUAR & AKHTAR (1968) recorded abnormalities in spindle formation in *S. bispinosa* and *S. sesban*. However, they did not mention the causes for the occurrence of such variable chromosome numbers. Variation in chromosome numbers could arise through abnormal chromosomal segregation and cell division as reported by LEWIS (1962) in *Claytonia virginica* ($n = 7, 8, 9, 11, 12, 16, 18$). But it remains yet to be established whether inter-or intraspecific hybridization or genotypic recombinations or aneuploidy are the main forces for the evolution of different chromosome numbers in the genus *Sesbania*. BIR et al. (1975) established the role of polyploidy in the evolution of tetraploid cytotypes in *S. Sesban* and they further reported a clear cut case of autopolyploidy in *S. sesban* var. *picta*.

GOLDBLATT (1981) is of the opinion that $x = 10$ and 11 are the primary base number for the tribe *Robinieae*, to which the genus *Sesbania* belongs, and he further suggests that descending polyploidy may have played an important role in the evolution and speciation of this tribe. According to him the genus *Sesbania* with $x = 6$ is a derived aneuploid. However, we are of the opinion that the base number of 6 is the primary base number for the genus *Sesbania*.

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Un nouveau *Cola* (*Sterculiaceae*) du Cameroun

B.-A. NKONGMENECK

Résumé : *Cola letouzeyana* Nkongmeneck, espèce nouvelle arbustive à pubescence hirsute, croissant en forêt atlantique camerounaise, est décrit.

Summary : *Cola letouzeyana* Nkongmeneck, a new shrubby species with hirsute pubescence, growing in the camerounese atlantic forest, is described.

Bernard-Aloys Nkongmeneck, Herbar National du Cameroun, B.P. 1601, Yaoundé, Cameroun.

Cola letouzeyana Nkongmeneck, *sp. nov.*

Arbuscula 1-5 m alta, caule tereti, cortice colore surdo, et pubescente (minutis pilis stellatis mixtis cum longis pilis rigidis). Folia disticha, lamina elliptica, obovata, basi leviter cordata, apice acuminata 6-22 × 2-8 cm ; 3-8 nervis basalibus palmatis et 8-10 lateralibus utrinque, mediana supra et infra pilosa ; nervis lateralibus supra pilosis ; stipulis filiformis, ciliatis persistentibus.

Inflorescentiae cymosae pauciflorae axillares. Flos pedicello filiformi, 2,5 cm alta ; 5 sepalis luteolis, liberis et aliquando conjunctis ad 1/4 inferiorem, extra pubescentibus. Flos masculus : androceo cum 10 thecis polliniferis. Flos hermaphroditus cum androceo simili et cum gynecio pubescenti, 5-carpellati ; stigma elongata reflexa.

Fructus : 1-5 folliculis glabris viridis, deinde aurantiacis, rostratis 2-6 × 1,2-1,5 cm ; 2-4 semina in quoque folliculo, cum 2 testis tecta, cotyledonibus cum pagina superiora pubescenti.

TYPE : *Letouzey 12421 (= HNC 32700)*, Cameroun, Hikoa Mahouda (chaîne de l'Hikoa Mandeng), 30 km ENE Édéa, 17.12.1973, feuilles, fleurs, fruits (holo-, P ; iso-, YA).

Arbuste rameux et très feuillu de 1-5 m de hauteur, à tige de section circulaire, entrenœuds courts ; épiderme juvénile terne, à pubescence jaunâtre : petits poils stellés mêlés à de longs poils raides, ces derniers plus nombreux et jusqu'à 5 mm de longueur. Feuilles distiques ; jeunes feuilles pendantes et vert clair ; feuilles développées à limbe elliptique, obové, de 6-22 × 2-8 cm, à face supérieure vert foncé, avec parfois quelques longs poils raides vers la base, à face inférieure vert clair et pubescente (petits poils stellés mêlés à de longs poils raides plus nombreux) ; 3-5(-8) nervures basilaires palmées et 8-10 paires de nervures latérales, nervure médiane saillante et pubescente dessus ; pétiole cylindrique, très court, densément pubescent, 2-7 mm ; stipules filiformes, persistantes, ciliées, jusqu'à 2 cm.

Inflorescences en cymes de 1-3 fleurs, axillaires. Fleurs à pédicelle filiforme, blanc, articulé au tiers supérieur ou à mi-hauteur, pubescent, jusqu'à 2,9 cm de hauteur ; calice à 5 sépales, ovés ou elliptiques, longs de 4-5 mm, jaune pâle, libres, parfois soudés au quart inférieur, pubescents sur leur face externe. Fleur mâle : androcée formé par un androphore de 2 mm de hauteur que surmonte une couronne de 10 loges polliniques au centre de